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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,000	03/27/2000	Andrew D. Bailey III	LAM1P130/P0566	6323
22434	7590	05/06/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 778 BERKELEY, CA 94704-0778			ALEJANDRO MULERO, LUZ L	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/536,000

Applicant(s)

BAILEY ET AL.

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 28-41 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 28-38, 40-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8, 28-38, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Setoyama et al., U.S. Patent 6,196,155 in view of Sakai, U.S. Patent 5,855,725 and further in view of Sekine et al., U.S. Patent 5,444,207.

Setoyama et al. shows the invention as claimed including a plasma processing apparatus for processing a substrate 4 comprising: a process chamber 1, defined at least in part by a top and a bottom end and a wall extending between the top end and the bottom end, within which a plasma is ignited and sustained for the processing; a

Art Unit: 1763

magnetic array having a plurality of magnetic elements 20a and 20b, that are disposed within the periphery of the chamber around the outside of the wall, the plurality of elements being configured to produce a magnetic field establishing a plurality of cusp patterns on the wall; and devices 14 and 15, for rotating the magnetic elements as to change the cusp pattern of the magnetic field (see figs. 1-2 and their descriptions). Furthermore, note that Setoyama et al. discloses the use of an apparatus comprising an RF antenna adjacent to and outside of the process chamber (see figs. 4a and 4b and its description),

Setoyama et al. does not expressly disclose that the plurality of magnet elements expands substantially from the top end and the bottom end of the process chamber. Sakai discloses a magnet array 5 that spans from the top end to the bottom end of the process chamber 1 (see fig. 1). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Setoyama et al. so as to include a magnet array where each magnet spans from the top to the bottom end of the processing chamber because such magnet arrangement is suitable to produce a magnetic field.

Setoyama et al. and Sakai do not expressly disclose a device for rotating magnetic fields of the plurality of magnetic elements so that each magnetic field of each magnetic element is individually rotated around individual axes of rotation, wherein each magnetic element has an individual axis of rotation passing through the magnetic element. Sekine et al. discloses an apparatus comprising a device 104 for rotating magnetic fields of a plurality of magnetic elements wherein each magnetic field of each

Art Unit: 1763

magnetic element is individually rotated around individual axes of rotation, wherein each magnetic element has an individual axis of rotation passing through the magnetic element (see col. 23-lines 1-5). Additionally, note that the apparatus is capable of rotating each magnet individually at a same angular speed and angular direction around an individual axis of rotation. In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Setoyama et al. modified by Sakai so as to comprise a device for rotating magnetic fields of the plurality of magnetic elements so that each magnetic element is individually rotated around individual axes of rotation, as taught by Sekine et al., in order to rotate the magnetic field without changing the respective positions of the magnet elements.

Setoyama et al. does not expressly disclose that the substrate support is a chuck, but official notice was taken in the office action mailed 6/27/02 that such means is well known and used in the art for securely supporting and holding substrates in the processing chamber, and its inclusion in the apparatus disclosed by the Setoyama et al. reference would be prima facie obvious, and therefore this limitation is taken to be admitted prior art. Also, Setoyama et al. does not expressly disclose that the devices 14 and 15 are connected between the plurality of magnetic elements and the process chamber, but there is no evidence that such device arrangement would affect the overall performance of the apparatus.

Setoyama et al. further discloses that the magnetic elements are permanent magnets that are axially oriented about the periphery of the process chamber. Also, it is

inherent from fig. 1 that the plurality of magnetic elements create a stronger magnetic field at the wall and a weaker magnetic field above the substrate, and that the magnetic field has an azimuthally symmetric radial gradient. Furthermore, note that the magnetic field at the substrate of the apparatus of Setoyama et al. is substantially zero and the axis of rotation for each magnet extends along the length of the magnet and is parallel to the chamber axis.

Response to Arguments

Applicant's arguments filed 3/03/04 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivations to combine the references are clearly stated in the rejection. Furthermore, it should be noted that the secondary references do not need to explicitly state the specific/different apparatuses in which their teaching may/can be used.

Regarding applicant's argument that there is no reasonable expectation of success, note that the expectation of success needs only to be reasonable, and no

alternative evidence has been provided to contradict the rejection made by the examiner. Furthermore, arguments of counsel cannot take the place of evidence in the record.

In response to applicant's argument that the references in the above rejection are not combinable, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion


THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Luz L. Alejandro
Primary Examiner
Art Unit 1763

May 4, 2004